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Chapter

Chemistry and microbiology of newly flooded soils: relationship to reservoir-water quality

December 1984

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In book: *Microbial Processes in Reservoirs*

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Abstract

Upon filling, a new reservoir undergoes several years of intensive biological and chemical transformations resulting from the decomposition of flooded organic matter together with reductive reactions of inorganic portions of the soil. Decomposition of flooded substrates provides a source of food for valuable fish species, but also lowers dissolved oxygen. Microbial interactions with flooded soil components result in release of algal growth promoting nutrients plus various metals and sulfide, making achievement of water quality objectives difficult. The work presented here summarizes the result of approaches developed to determine the effects of microbial processes occurring in flooded soils upon reservoir water quality. Emphasis is placed on the nature of the microbial processes involved, rather than specific microorganisms responsible for the processes. Examples are taken from soil-water interaction studies that simulate newly impounded reservoirs. In addition to an examination of the microbially-mediated release of nutrients and metals from flooded soil, this chapter also describes the effects of temperature and reservoir aging upon oxygen uptake and nutrient regeneration. Emphasis is also given to the unique hydrodynamic properties of reservoirs; these properties determine both the fate and the impact of products released by microbial activity.



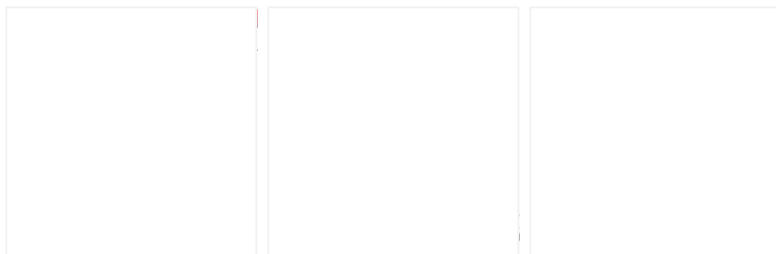
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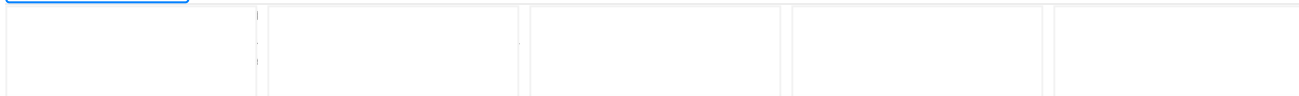
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